

MEXICO: Grown at Coconut Grove, Fla., from seed collected by Wilson Popenoe (P.I. 119001) at Puerto Mexico, Isthmus of Tehuantepec, Veracruz, Mexico. Type no. 56266, National Arboretum Herbarium, collected July 5, 1939, by J. L. Fennell (no. 1008).

In general appearance *Vitis popenoei* is somewhat more suggestive of *V. rotundifolia* than of *V. munsoniana* owing to the mostly smaller-toothed leaf margins and the thin, rugose leaf texture. It is at once distinguished from either of these species, however, by the relatively longer leaves and by the slenderly prolonged leaf apex. In this respect the foliage is somewhat suggestive of that found on certain forms of *V. cordifolia*. Average leaves of both *V. rotundifolia* and *V. munsoniana* measure broader than long (from insertion of petiole to apex) in distinct contrast with those of *V. popenoei*, which are mostly not broader than long.

In addition to its botanical differences *V. popenoei* occupies a distinct climate and a range several hundred miles farther south than that occupied by either of the other two known species of *Muscadinia*. It is the first and only muscadine grape yet known to occur naturally within the tropics. A study of its genetic relationship as regards the other muscadine and *Euvitis* species might bring to light certain characters of horticultural or botanical interest.

BOTANY.—*Two new species of Muhlenbergia*.¹ CHARLOTTE O. GOODDING, Rocky Mountain Herbarium, Laramie, Wyo. (Communicated by JASON R. SWALLEN.)

Recent study of the genus *Muhlenbergia* has revealed the presence of two new species, both of which occur in the canyons of southern Arizona.

***Muhlenbergia xerophila* C. O. Goodding, sp. nov.**

Perennis; culmi dense caespitosi, glabri vel scaberuli, 45–90 cm alti; ligula obtusa, 1.5–3 mm longa; laminae involutae, 15–50 cm longae, 1–1.5 mm latae; panicula pallida, 15–35 cm longa; glumae 2–3 mm longae, acutae vel acuminatae, scabrae ad apex; lemma 4 mm longum, scabrum; callum hirsutum; arista 18–25 mm longa.

Plants perennial; culms densely caespitose, glabrous to very slightly scabrous especially below the nodes, 45–90 cm tall or sometimes more; sheaths rounded, very slightly scaberulous; ligule membranaceous, 2–4 mm long, obtuse; blades involute, 1–1.5 mm wide, 15–50 cm long; panicle open, 15–35 cm long about 4–5 cm wide, pale, the branches up to 7 cm long, filiform, flexuous; spikelets about 4 mm long; glumes equal to slightly unequal 2–2.5 or even 3 mm long, 1-nerved, acute to acuminate, the apex scabrous to very short pubescent; lemma about 4 mm long, scabrous above with short tufts of hairs on the callus, 3-nerved, the midnerve extending into a slender awn 10–35 mm long.

¹ Contributions from the Department of Botany and the Rocky Mountain Herbarium of the University of Wyoming, Laramie, Wyo., no. 175. Received September 25, 1939.

This species differs from *M. setifolia* in having acute to acuminate glumes, longer blades, which are not curled below, and a longer panicle; from *M. rigida* in having as a rule a longer and narrower panicle, a shorter, broadly rounded ligule, and longer acute to acuminate glumes, scabrous at the tip; and from *M. dubia* and *M. metcalfei* in having a wider panicle, a shorter ligule, which is rounded instead of somewhat lacerated above, acute glumes, scabrous at the apex, and long-awned lemmas.

TYPE: *L. N. Goodding* M 262, collected in Sycamore Canyon, Ariz., September 22, 1937. The type specimen is deposited in the Soil Conservation Service Herbarium at Tucson, Ariz., with duplicate types in the Rocky Mountain Herbarium, Laramie, Wyo., and in the U. S. National Herbarium.

SPECIMENS REFERRED TO THIS SPECIES: *Silveus* 3477, collected in Sycamore Canyon, Ariz., September 25, 1938; *Silveus* 3489, collected in Box Canyon, Ariz., September 25, 1938; *Goodding* A 9493, collected in Forest Cabin Canyon, Baboquivari Mountains, Ariz., September 24, 1938; *Hardies and Proctor* M 152, collected in Sycamore Canyon, Ariz., November 24, 1936.

***Muhlenbergia dubioides* C. O. Goodding, sp. nov.**

Perennis; culmi dense caespitosi, striati; ligula truncata, 1–2 mm longa; laminae involutae, 15–50 cm longae, 1–2 mm latae; panicula pallida, angusta, 15–35 cm longae, 2–4 cm lata; glumae 2–3 mm longae, acute vel erosae, scabrae ad apex; lemma 3.5–4 mm longum, scabrum; callum hirsutum; arista 3–10 mm longa.

Plants perennial; culms densely tufted, more or less striate, 50–100 cm tall; sheaths rounded; ligule firm to membranaceous, truncate, 1–2 mm long; blades elongate, involute, 15–50 cm long, 1–2 mm wide, scabrous above and glabrous to scaberulous below; panicle 15–35 cm long, 2–4 cm wide, pale, the branches appressed, the lower branches 2–8 cm long, rather densely flowered; pedicels slender, scabrous; spikelets about 4 mm long; glumes membranaceous, 2–3 mm long, subequal, faintly nerved, acute, more or less erose at apex, scaberulous above; lemma 3.5–4 mm long, 3-nerved, scaberulous above and often almost to the base, the callus with tufts of hairs 1–1.5 mm long, the midnerve extending into a rather straight, scabrous awn 3–10 mm long.

This species resembles *M. dubia* in the appearance of the panicle but differs in having a shorter truncate ligule, acute glumes, and a hairy callus. From *M. xerophila* this species may be separated by its narrow contracted panicle, short-awned lemmas, and more truncate ligule.

TYPE: *W. A. Silveus* 3490, collected in Box Canyon, Ariz., September 25, 1936. The type specimen is deposited in the Soil Conservation Service Herbarium in Tucson, Ariz.

Also referred to this species is *E. W. Hardies and Ed Morris* M 155, collected in Bear Canyon, Santa Catalina Mountains, Ariz., November 28, 1936.